

## **II. REMARKS/ARGUMENTS**

### **A. General**

The application now contains 56 claims.

Claims 1, 37, 38, 40, 44 and 46 have been amended in order to better define the subject matter being claimed. No new matter has been added to the claims under the current amendment. No new matter has been to the present application under the current amendment.

Claims 52 and 56 have been cancelled from the present application without prejudice.

Claims 2-36, 38-37, 39, 41-43, 45, 47-51, 53-55 and 57-58 remain the same.

### **B. Summary of Rejection under 35 USC §102(a) and Response**

In the Office Action, the Examiner has rejected claims 46-49, 51, 52, 56 and 57 under 35 USC §102(a) as being anticipated by Canadian Patent 2,292,828 (hereafter to be referred to as Lyon)

In light of the amendments made to the claims, the Applicant respectfully traverses the Examiner's rejection, and submits that claims 46-49, 51, 52, 56 and 57 are in allowable form.

Claim 46-49, 51, 52, 56 and 57

The Examiner's attention is respectfully directed towards the following limitations of independent claim 46:

A method of regulating packet flow through a device having an ingress entity, an egress entity, a processing fabric between the ingress entity and the egress entity, and a control entity adapted to process packets prior to transmission thereof to the ingress entity, said method comprising:

obtaining congestion information regarding packets received at the egress entity, **said congestion information including information associated with the amount of bandwidth consumed by packets arriving at the egress entity; and**  
providing the congestion information to the control entity, for use by the control entity in processing packets prior to transmission thereof to the ingress entity.

The Applicant respectfully submits that Lyon does not disclose, teach or suggest the above-emphasized limitations of independent claim 46. More specifically, Lyon does not disclose "said congestion information including information associated with the amount of bandwidth consumed by packets arriving at the egress entity".

More specifically, Lyon does not teach sending congestion information that includes information associated with the amount of bandwidth consumed by packets arriving at the egress entity, to a control entity. Instead, what Lyon teaches in page 3, line 14 through page 4, line 2 is sending "bandwidth priority" information from an output port and information on the number of cells in that output to a control entity. Lyon's number of cells is a measurement of buffer depth, which is a *quantity* of bits *stored* at the egress. In contrast, the present application teaches providing a control entity with information derived from the amount of bandwidth consumed by arriving packets, which is the *rate* of arrival of bits at the egress.

In addition, the "bandwidth priority" disclosed by Lyon is not the same as "information associated with the amount of bandwidth consumed by packets arriving at the egress entity", as recited in amended claim 46. As indicated on

page 3, lines 23 and 28-30, and more clearly on page 2, lines 19 and 26-28, of Lyon, the "bandwidth priority" is a quality that is a static property of an individual packet/cell/frame (a quality of bits). Lyon is using "bandwidth" to label a type of priority, thereby distinguishing that type of priority from the other types of priorities, such as emission priority and loss priority, which are combined to create this new type of priority. The calculation of this "bandwidth priority" is clearly defined on page 2, lines 26-28, and the amount of bandwidth consumed is not a component of this calculation.

In light of the above, the Applicant respectfully submits that Lyon does not teach or suggest the above emphasized limitation of independent claim 46.

As per §2131 of the MPEP, in order "to anticipate a claim, the reference must teach every element of the claim". Since Lyon does not teach the limitation of "congestion information including information associated with the amount of bandwidth consumed by packets arriving at the egress entity", Lyon does not support a rejection based on anticipation. Accordingly, claim 46 as amended meets the requirements of 35 U.S.C. 102.

The Applicant therefore submits that claim 46 is in allowable form, and respectfully requests that the Examiner withdraw his rejection of independent claim 46.

Claims 47-49, 51, 52, 56 and 57 depend from independent claim 3 and, as such, incorporate by reference all the limitations contained therein, including the following limitation which has been shown to be absent from Lyon:

**said congestion information including information associated with the amount of bandwidth consumed by packets arriving at the egress entity; and**

Accordingly, claims 47-49, 51, 52, 56 and 57 are now believed to be in condition for allowance as being dependent upon an allowable base claim. The Examiner is respectfully requested to withdraw her rejection to dependent claims 47-49, 51, 52, 56 and 57.

### **C. Summary of Rejection under 35 USC §103(a) and Response**

#### *Claims 1, 2, 25-37, 40-45 and 53-55*

On page 4 of the Office Action, the Examiner has rejected claims 1, 2, 25-37, 40-45 and 53-55 under 35 USC §103(a) as being unpatentable over Lyon in view of U.S. Patent Application 2002/0105908 (hereafter to be referred to as Blumer et al.)

For the reasons presented below, the Applicant respectfully submits that claims 1, 2, 25-37, 40-45 and 53-55, as they currently stand, overcome the Examiner's rejections.

The Examiner's attention is respectfully directed towards the following emphasized limitation of independent claim 1.

#### **Claim 1**

A method of regulating packet flow through a device having a processing fabric with at least one input port and at least one output port, a control entity connected to the at least one input port for regulating packet flow thereto, and a plurality of egress queues connected to the at least one output port for temporarily storing packets received therefrom, said method comprising:

obtaining bandwidth utilization information regarding packets received at the egress queues, said bandwidth utilization information including information associated with the amount of bandwidth consumed by packets received at each of said egress queues;

**determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue; and**

providing the discard probability associated with each egress queue to the control entity, for use by the control entity in selectively transmitting packets to the at least one input port of the processing fabric.

The Applicant respectfully submits that neither of the references cited by the Examiner disclose, teach or suggest the above-emphasized limitation of independent claim 1. More specifically, neither Lyon nor Blumer et al. disclose the limitation of "determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue".

In the Office Action, the Examiner concedes that Lyon does not specifically disclose "determining from the bandwidth utilization information, a discard probability associated with each egress queue". It thus follows that Lyon does not disclose "determining, from the bandwidth utilization information *and* the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue".

The Applicant further submits that the above limitation is also absent from Blumer et al. While Blumer et al. provides a list of variables in paragraph 29 that can be used in determining drop probability, the amount of bandwidth consumed by packets received at the egress queues is not among them. As such, Blumer et al. does not disclose "determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue"[emphasis added].

As per § 2143.03 of the *Manual of Patent Examining Procedure*, in order to establish a *prima facie* case of obviousness, the combined prior art references

must teach or suggest all of the claim limitations. Since it has been shown that neither Lyon nor Blumer et al. teach the above limitation of independent claim 1, the Applicant respectfully submits that the combination of these references is not sufficient for establishing a *prima facie* case of obviousness as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of independent claim 1.

Claims 2, 25-36 and 44-45 depend from independent claim 1 and, as such, incorporate by reference all the claim limitations contained therein, including the aforementioned limitation which has already been shown to be absent from both Lyon and Blumer et al. Accordingly, for the same reasons as those presented above with respect to claim 1, the Applicant respectfully submits that the combination of Lyon and Blumer et al. is not sufficient to establish a *prima facie* case of obviousness for claims 2, 25-36 and 44-45. The Examiner is respectfully requested to withdraw his rejection to dependent claims 2, 25-36 and 44-45.

The Examiner's attention is respectfully directed towards the following emphasized limitation of independent claim 37.

**Claim 37**

A drop probability evaluation module for use in a device having (i) a processing fabric with at least one input port and at least one output port; (ii) a control entity connected to the at least one input port for regulating packet flow thereto; and (iii) a plurality of egress queues connected to the at least one output port for temporarily storing packets received therefrom, said drop probability evaluation module comprising:

means for obtaining bandwidth utilization information regarding packets received at the egress queues, said bandwidth utilization information including information associated with the amount of bandwidth consumed by packets received at each of said egress queues;

**means for determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue; and**

means for providing the discard probability associated with each egress queue to the control entity, for use by the control entity in selectively transmitting packets to the at least one input port of the processing fabric.

For the same reasons as those presented above with respect to independent claim 1, the Applicant respectfully submits that neither Lyon nor Blumer et al. disclose the above emphasized limitation of independent claim 37. As such, these references are insufficient to establish a *prima facie* case of obviousness as per § 2143.03 of the *MPEP*. The Examiner is respectfully requested to withdraw his rejection of independent claim 37.

The Examiner's attention is respectfully directed towards the following emphasized limitation of independent claim 40.

An apparatus, comprising:

- a processing fabric having at least one input port and at least one output port, the processing fabric being adapted to process packets received from the at least one input port and forward processed packets to the at least one output port;

- a plurality of egress queues, each connected to a corresponding one of the at least one output port of the processing fabric, each egress queue being adapted to (i) temporarily store packets received from the corresponding output port of the processing fabric and (ii) determine bandwidth utilization information on the basis of the packets received at the egress queues, **wherein said bandwidth information includes information associated with the amount of bandwidth consumed by packets received at each of said egress queues;**

- a drop probability evaluation module connected to the egress queues, said drop probability evaluation entity being adapted to **determine a discard probability associated with each of the egress queues on the basis of the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues; and**

- a packet acceptance unit connected to the at least one input port of the processing fabric and to the drop probability evaluation module, the packet acceptance entity being adapted to (i) receive packets destined for the at least one output port of the processing fabric; (ii) identify an egress queue associated with each received packet; and (iii) on the basis of the discard probability associated with the egress queue associated with each received packet, either transmit or not transmit said received packet to one of the at least one input port of the processing fabric.

For the same reasons as those presented above with respect to independent claim 1, the Applicant respectfully submits that neither Lyon nor Blumer et al. disclose the above emphasized limitations of independent claim 40. As such, these references are insufficient to establish a *prima facie* case of obviousness

as per § 2143.03 of the *MPEP*. The Examiner is respectfully requested to withdraw his rejection of independent claim 40.

Claims 41-43 depend from independent claim 40 and, as such, incorporate by reference all the claim limitations contained therein, including the aforementioned limitations which have already been shown to be absent from both Lyon and Blumer et al. Accordingly, for the same reasons as those presented above with respect to claim 40, the Applicant respectfully submits that the combination of Lyon and Blumer et al. is not sufficient to establish a prima facie case of obviousness for claims 41-43. The Examiner is respectfully requested to withdraw his rejection to dependent claims 41-43.

Claims 53-55 depend from independent claim 46 and as such incorporate by reference all the limitations contained therein, including the following limitation which has already been shown to be absent from Lyon.

**obtaining congestion information regarding packets received at the egress entity, said congestion information including information associated with the amount of bandwidth consumed by packets arriving at the egress entity; and**

It is further submitted that the above limitation is also absent from Blumer et al. Blumer et al. does not teach or suggest sending congestion information that includes information associated with the amount of bandwidth consumed by packets arriving at the egress entity, to a control entity. Instead, Blumer et al. teaches a refinement to calculating a drop probability based on queue depth (a quantity of bits stored), and uses that drop probability locally. Blumer et al. lists in paragraph 29 a number of other factors that can be taken into account, but the amount of bandwidth is not in the list.

Accordingly, since neither Lyon nor Blumer et al. teach the above limitation of independent claim 46, and since claims 53-55 depends from independent claim



46, the Applicant respectfully submits that the references cited by the Examiner do not support a *prima facie* case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claims 53-55 under 35 U.S.C. §103(a).

Claims 3 and 4

On page 14 of the Office Action, the Examiner has rejected claims 3 and 4 under 35 USC §103(a) as being unpatentable over Lyon in view of Blumer et al. in further view of U.S. Patent 6,898,182 (hereafter to be referred to as Cloonan)

Claims 3 and 4 depend from independent claim 1 and as such incorporate by reference all the limitations contained therein, including the following limitations which have already been shown to be absent from both Lyon and Blumer et al.

obtaining bandwidth utilization information regarding packets received at the egress queues, said bandwidth utilization information including information associated with the amount of bandwidth consumed by packets received at each of said egress queues;  
determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue; and

The Applicant further submits that these limitations are also absent from Cloonan. As seen in Figure 2 of Cloonan, flow information is only sent forward (in the direction of the packets); see data arriving at each "data throughput monitor" 220, 225 and 250 before each "flow limiter" 215, 225 and 245, and that there are no arrows from any "flow limiter" back to anywhere upstream of the data monitor. Although Cloonan does teach sending a buffer depth signal upstream, buffer depth is a *quantity* of bits stored in a buffer, and not a *rate* at which bits are arriving at an egress.

Accordingly, since neither Lyon, Blumer et al. nor Cloonan teach the above limitation of independent claim 1, and since claims 3 and 4 depend from independent claim 1, the Applicant respectfully submits that the references cited by the Examiner do not support a prima facie case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claims 3 and 4 under 35 U.S.C. §103(a).

Furthermore, with regard to claim 3, while Cloonan assigns priority to packets coming from customers based on a customer level service plan, Cloonan does not teach a system whereby some service classes of customer packets are considered "traffic" while others are considered "non-traffic". To the applicant's knowledge it is standard in the art that all packets coming from customers are considered "traffic" regardless of their priority (see any networking reference, and specifically Cloonan's column 1 line 66 through column 2 line 4). Therefore, in regard to claim 3, there are multiple limitations cited which are not present in any of the references cited.

Claims 5-17

On page 16 of the Office Action, the Examiner has rejected claims 5-17 under 35 USC §103(a) as being unpatentable over Lyon in view of Blumer et al. in further view of Cloonan in still further view of U.S. Patent 6,820,128 (hereafter to be referred to as Firoiu et al.)

Claims 5-17 depend from independent claim 1 and as such incorporate by reference all the limitations contained therein, including the following limitations which have already been shown to be absent from Lyon, Blumer et al. and Cloonan.

obtaining bandwidth utilization information regarding packets received at the egress queues, said bandwidth utilization information including information associated with the amount of bandwidth consumed by packets received at each of said egress queues;  
determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue; and

The Applicant further submits that these limitations are also absent from Firoiu et al. As can be seen in Figure 4 of Firoiu et al., Firoiu et al. relates to yet another refinement on using buffer (queue) depth. There is no suggestion or teaching in Firoiu et al. for “determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue”.

Accordingly, since none of the references cited by the Examiner teach the above limitation of independent claim 1, and since claims 5-17 depend from independent claim 1, the Applicant respectfully submits that the references cited by the Examiner do not support a *prima facie* case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claims 5-17 under 35 U.S.C. §103(a).

Furthermore, with regard to claim 5, the Applicant respectfully disagrees with the Examiner's allegation that Firoiu discloses a drop function based on an average drop probability over an interval of time, where the drop probability is increased as a threshold is exceeded, and decreased as the queue size decreases in comparison to the threshold (col 6 lines 32-67). For Firoiu's drop function, Firoiu clearly states that the drop probabilities are determined from the average buffer depth (queue size), as shown in column 2 lines 40-42, column 6 lines 32-52 and Fig. 4. While Firoiu does compute the time-average of the drop probability for each queue, this value for a queue is not used to adjust the drop probability that is then sent upstream to ingresses send packets to be added to the queues, as is

done in the present application. Instead a *ratio* of these values for multiple queues is sent downstream to adjust the rate for withdrawing from the queues. Accordingly, claim 5 contains multiple limitations that have been shown to be absent from the cited prior art. The applicant therefore respectfully submits that claim 5 is in allowable form.

With respect to claim 6, the applicant respectfully disagrees with the allegation that dropping packets and adding packets to a queue are equivalent to incrementing or decrementing bandwidth. This is shown by the following simple case:

Supposing that packets arrive from the switch fabric at a steady ready of 1 megabit per second for a 1 megabit per second egress port that has a 1% full queue. In Firoiu it can be seen from figure 3 the drop probability for a 1% full queue is zero for either queue type and from figure 4 that if the drop probability is zero every packet is added to the queue, so in this case in Firoiu it is obvious that every packets will indeed be added to the buffer (queue). As can be seen from Firoiu's column 8, lines 30-35, the packets are withdrawn from the head of the queue and sent at a rate equal to the line rate, which in this example is 1 megabit per second. With zero drops and the received bandwidth for the queue equal to the withdrawn bandwidth from the queue, clearly this is a steady state.

This belies the examiner's assertion that adding packets to the buffer is equivalent to incrementing the bandwidth, as every packet is added to the buffer while the bandwidth remains constant.

Accordingly, claim 6 contains multiple limitations that have been shown to be absent from the cited prior art. The applicant therefore respectfully submits that claim 6 is in allowable form.

Claims 18 and 19

On page 26 of the Office Action, the Examiner has rejected claims 18 and 19 under 35 USC §103(a) as being unpatentable over Lyon in view of Blumer et al. in further view of Cloonan in still further view of U.S. Patent 5,359,593 (hereafter to be referred to as Derby et al.)

Claims 18 and 19 depend from independent claim 1 and as such incorporate by reference all the limitations contained therein, including the following limitations which have already been shown to be absent from Lyon, Blumer et al. and Cloonan.

obtaining bandwidth utilization information regarding packets received at the egress queues, said bandwidth utilization information including information associated with the amount of bandwidth consumed by packets received at each of said egress queues;  
determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue; and

The Applicant further submits that these limitations are also absent from Derby et al. As can be seen from Derby's column 11, lines 28-33, Derby et al. is monitoring *ingress* bandwidth and adjusting the bandwidth allocated to a connection to minimize dropping packets during potential congestion, in contrast to monitoring *egress* bandwidth. As such, there is no suggestion or teaching in Derby et al. for "determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue".

Accordingly, since none of the references cited by the Examiner teach the above limitations of independent claim 1, and since claims 18 and 19 depend from

independent claim 1, the Applicant respectfully submits that the references cited by the Examiner do not support a *prima facie* case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claims 18 and 19 under 35 U.S.C. §103(a).

Claims 20-24

On page 28 of the Office Action, the Examiner has rejected claims 20-24 under 35 USC §103(a) as being unpatentable over Lyon in view of Blumer et al. in further view of Cloonan in still further view of U.S. Patent 6,442,652 (hereafter to be referred to as Laboy et al.)

Claims 20-24 depend from independent claim 1 and as such incorporate by reference all the limitations contained therein, including the following limitations which have already been shown to be absent from Lyon, Blumer et al. and Cloonan.

obtaining bandwidth utilization information regarding packets received at the egress queues, said bandwidth utilization information including information associated with the amount of bandwidth consumed by packets received at each of said egress queues;  
determining, from the bandwidth utilization information and the information associated with the amount of bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue; and

The Applicant further submits that these limitations are also absent from Laboy et al. More specifically, Laboy et al. does not relate to the field of congestion management, switch fabrics, or even networking. Instead, Laboy et al. is related to the art of hardening CPU caches against radiation. The applicant can find nothing in Laboy that refers to measuring bandwidth. As such, there is no suggestion or teaching in Laboy et al. for "determining, from the bandwidth utilization information and the information associated with the amount of

bandwidth consumed by packets received at each of said egress queues, a discard probability associated with each egress queue”.

Accordingly, since none of the references cited by the Examiner teach the above limitation of independent claim 1, and since claims 20-24 depend from independent claim 1, the Applicant respectfully submits that the references cited by the Examiner do not support a *prima facie* case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claims 20-24 under 35 U.S.C. §103(a).

Claims 38-39

On page 31 of the Office Action, the Examiner has rejected claims 38 and 39 under 35 USC §103(a) as being unpatentable over Lyon in view of Firoiu et al.

The Examiner's attention is respectfully directed towards the following emphasized limitation of independent claim 38.

A drop probability evaluation module for use in a device having (i) a processing fabric with at least one input port and at least one output port; (ii) a control entity connected to the at least one input port for regulating packet flow thereto; and (iii) a plurality of egress queues connected to the at least one output port for temporarily storing packets received therefrom, said drop probability evaluation module including:

an allocation processing entity, for determining an allocated traffic bandwidth for each of the egress queues; and

a probability processing entity in communication with the allocation processing entity, said probability processing entity being adapted to receive the allocated traffic bandwidth for each of the egress queues from the allocation processing entity and also adapted to receive an average number of received traffic bytes, per unit time, for each of the egress queues from an external entity, the probability processing entity being operable to:

compare the average number of received traffic bytes for each particular one of the egress queues to the allocated traffic bandwidth for the particular egress queue; and

**set the discard probability for the particular egress queue to the sum of a time average of previous values of the discard probability for the particular egress queue and either a positive or a negative increment,**

**depending on whether the average number of received traffic bytes for the particular egress queue is greater or less than the allocated traffic bandwidth for the particular egress queue.**

The Applicant respectfully submits that neither Lyon nor Firoiu et al. disclose, teach or suggest the above-emphasized limitation of independent claim 38. More specifically, neither of these references discloses a probability processing entity being operable to "set the discard probability for the particular egress queue to the sum of a time average of previous values of the discard probability for the particular egress queue and either a positive or a negative increment, depending on whether the average number of received traffic bytes for the particular egress queue is greater or less than the allocated traffic bandwidth for the particular egress queue".

In the Office Action, the Examiner concedes that Lyon does not disclose this limitation. However, the Examiner indicates that "Firoiu et al. discloses a drop function based on an average drop probability over an interval of time, where the drop probability is increased as a threshold is exceeded, and decreased as the queue size decreases in comparison to the threshold".

In response, the Applicant respectfully refutes the Examiner's allegation that Firoiu et al. discloses a drop function based on an average drop probability over an interval of time, where the drop probability is increased as a threshold is exceeded, and decreased as the queue size decreases in comparison to the threshold (col. 6, lines 32-37). For Firoiu's drop function, Firoiu clearly states that the drop probabilities are determined from the average buffer depth (queue size), as shown in col. 2, lines 40-42, col 6, lines 32-52 and Figure 4.

While Firoiu does compute the time-average of the drop probability for each queue, this value for a queue is not used to adjust the *drop probability* that is then sent *upstream* to *ingresses* send packets to be *added* to the queues, as is



done in the present application. Instead a ratio of these values *for multiple queues* is sent *downstream* to adjust the rate for *withdrawing from* the queues.

Finally, the Applicant respectfully submits that dropping packets and adding packets to a queue is not equivalent to incrementing or decrementing bandwidth.

Accordingly, since neither Lyon nor Firoiu et al. teach the above limitation of independent claim 38, the Applicant respectfully submits that the references cited by the Examiner do not support a *prima facie* case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claim 38 under 35 U.S.C. §103(a).

Claim 39 depends from independent claim 38 and, as such, incorporates by reference all the claim limitations contained therein, including the aforementioned limitation which has already been shown to be absent from both Lyon and Firiou et al. Accordingly, for the same reasons as those presented above with respect to claim 38, the Applicant respectfully submits that the combination of Lyon and Blumer et al. is not sufficient to establish a *prima facie* case of obviousness for claim 39. The Examiner is respectfully requested to withdraw his rejection to dependent claim 39.

Claim 50

On page 33 of the Office Action, the Examiner has rejected claim 50 under 35 USC §103(a) as being unpatentable over Lyon in view of U.S. Patent 6,813,242 (hereafter to be referred to as Haskin et al.)

Claim 50 depends from independent claim 46 and as such incorporates by reference all the limitations contained therein, including the following limitation which has already been shown to be absent from Lyon:

obtaining congestion information regarding packets received at the egress entity,  
**said congestion information including information associated with the amount  
of bandwidth consumed by packets arriving at the egress entity; and**

The Applicant further submits that this limitation is also absent from Haskin et al. As can be seen from Haskin's Fig. 3 and the accompanying description in column 4, lines 51-62, Haskin et al. teaches monitoring for the presence of traffic coming into a switch from an external link, and using that information to infer either congestion or a failed link and the reroute traffic. Nowhere does Haskin et al. disclose congestion information that includes "information associated with the amount of bandwidth consumed by packets arriving at the egress entity".

Accordingly, since neither Lyon nor Haskin et al. teach the above limitation of independent claim 46, and since claim 50 depends from independent claim 46, the Applicant respectfully submits that the references cited by the Examiner do not support a *prima facie* case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claim 50 under 35 U.S.C. §103(a).

Claim 58

On page 33 of the Office Action, the Examiner has rejected claim 58 under 35 USC §103(a) as being unpatentable over Lyon in view of U.S. Patent 6,728,253 (hereafter to be referred to as Jefferies et al.)

Claim 58 depends from independent claim 46 and as such incorporates by reference all the limitations contained therein, including the following limitation which has already been shown to be absent from Lyon:

obtaining congestion information regarding packets received at the egress entity,  
**said congestion information including information associated with the amount  
of bandwidth consumed by packets arriving at the egress entity; and**

The Applicant further submits that this limitation is also absent from Jefferies et al. As can be seen from Jefferies et al. at col. 2, lines 25-44, this reference relates to using queue occupancy (buffer depth again) to selectively pause and re-enable transmission to a set of queues. Nowhere does Jefferies et al. disclose congestion information that includes "information associated with the amount of bandwidth consumed by packets arriving at the egress entity".

Accordingly, since neither Lyon nor Jefferies et al. teach the above limitation of independent claim 46, and since claim 58 depends from independent claim 46, the Applicant respectfully submits that the references cited by the Examiner do not support a *prima facie* case of obviousness, as per § 2143.03 of the MPEP. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claim 58 under 35 U.S.C. §103(a).

Furthermore, the Applicant respectfully submits that while Jefferies discloses that the queues have variable occupancy (*a static qualitative property* of a queue), this is not the same as using the variability in the occupancy (*a dynamic quantitative property* of a queue). In other words, in Jefferies the variable occupancy is a result of how Jefferies decides which packets to send from the ingress to an egress queue, while in the present application the variability is a factor in how the present invention decides which packet to send from an ingress to an egress queue.

### III. CONCLUSION

In view of the above, it is respectfully submitted that claims 1-51, 53-55 and 57-58 are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance of claims 1-51, 53-55 and 57-58 at an early date is solicited.

If the claims of the application are not considered to be in full condition for allowance, for any reason, the Applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims or in making constructive suggestions so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,



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